

WHAT IS CLAIMED IS:

1 1. A magnetic disk control apparatus for recording data for each sector
2 on a magnetic disk in such a manner that when a servo field is present in a
3 sector including a synchronization field and a data field, said sector is split into
4 a first split sector and a second split sector each including a synchronization
5 field and a data field,

6 said apparatus comprising:

7 a first synchronization field forming section that forms said
8 synchronization field in said first split sector;

9 a second synchronization field forming section that forms said
10 synchronization field shorter than that of said first split sector in said second
11 split sector.

1 2. A magnetic disk control apparatus as set forth in claim 1, wherein

2 said first synchronization field forming section forms a phase
3 synchronization field capable of phase synchronization and a phase frequency
4 synchronization field capable of phase frequency synchronization as said
5 synchronization field, and

6 said second synchronization field forming section forms a phase
7 synchronization field capable of phase synchronization as said synchronization
8 field; and

1 3. A magnetic disk control apparatus as set forth in claim 2,

2 said apparatus further comprising:

3 a phase frequency information storage section that reads and stores,
4 when data recorded on the magnetic disk is read, phase frequency information
5 from the phase frequency synchronization field formed by said first
6 synchronization field forming section and uses the phase frequency

7 information as phase frequency synchronization information for reading data
8 from said second split sector.

1 4. A magnetic disk control method for recording data for each sector on
2 a magnetic disk in such a manner that when a servo field is present in a sector
3 including a synchronization field and a data field, said sector is split into a first
4 split sector and a second split sector each including a synchronization field and
5 a data field,

6 said method comprising, for recording data on the magnetic disk:

7 a first split sector forming step of forming a data field after forming said
8 synchronization field as said first split sector; and

9 a second split sector forming step of forming a data field after forming
10 said synchronization field shorter than that of said first split sector as said
11 second split sector.

1 5. A magnetic disk control method as set forth in claim 4,

2 wherein, in said first split sector forming step, said data field is formed
3 after a phase synchronization field capable of phase synchronization and a
4 phase frequency synchronization field capable of phase frequency
5 synchronization are formed as said synchronization field,

6 wherein, in said second split sector forming step, said data field is
7 formed after a phase synchronization field capable of phase synchronization is
8 formed as said synchronization field.

1 6. A magnetic disk control method as set forth in claim 5,

2 said method further comprising, for reading data from the magnetic
3 disk:

4 a first split sector reading step of reading phase information from the
5 phase synchronization field in said first split sector and phase frequency

6 information from the phase frequency synchronization field in said first split
7 sector and reading data from the data field in said first split sector; and

8 a second split sector reading step of reading phase information from
9 the phase synchronization field in the second split sector and reading data
10 from the data field in the second split sector by using the phase information
11 read from the phase synchronization field in said second split sector and the
12 phase frequency information read from the phase frequency synchronization
13 field in said first split sector.

1 7. A magnetic disk control program for instructing a computer to
2 execute a magnetic disk control method for recording data for each sector on a
3 magnetic disk in such a manner that when a servo field is present in a sector
4 including a synchronization field and a data field, said sector is split into a first
5 split sector and a second split sector each including a synchronization field and
6 a data field,

7 said program instructing the computer to execute, when recording data
8 on the magnetic disk:

9 a first split sector forming step of forming a data field after forming said
10 synchronization field as said first split sector; and

11 a second split sector forming step of forming a data field after forming
12 said synchronization field shorter than that of said first split sector as said
13 second split sector.

1 8. A magnetic disk control program as set forth in claim 7,

2 wherein, in said first split sector forming step, said data field is formed
3 after a phase synchronization field capable of phase synchronization and a
4 phase frequency synchronization field capable of phase frequency
5 synchronization are formed,

6 wherein, in said second split sector forming step, said data field is

7 formed after a phase synchronization field capable of phase synchronization is
8 formed.

1 9. A magnetic disk control program as set forth in claim 8, wherein,
2 said program further instructing the computer to execute, when reading
3 data from the magnetic disk:

4 a first split sector reading step of reading phase information from the
5 phase synchronization field in said first split sector and phase frequency
6 information from the phase frequency synchronization field in said first split
7 sector and reading data from the data field in said first split sector; and

8 a second split sector reading step of reading phase information from
9 the phase synchronization field in said second split sector and reading data
10 from the data field in said second split sector by using the phase information
11 read from the phase synchronization field in said second split sector and the
12 phase frequency information read from the phase frequency synchronization
13 field in said first split sector.

1 10. A magnetic disk having data for each sector recorded thereon in
2 such a manner that when a servo field is present in a sector including a
3 synchronization field and a data field, said sector is split into a first split sector
4 and a second split sector each including a synchronization field and a data field,
5 wherein, in said first split sector, said synchronization field is formed,
6 and a data field is formed following said synchronization field,

7 wherein, in said second split sector, said synchronization field shorter
8 than that of in said first split sector is formed, and a data field is formed
9 following said synchronization field.

1 11. A magnetic disk set forth in claim 10,
2 wherein, in said first split sector, a phase synchronization field capable

3 of phase synchronization and a phase frequency synchronization field capable
4 of phase frequency synchronization are formed as said synchronization field,
5 and a data field is formed following said phase frequency synchronization field,
6 wherein, in said second split sector, a phase synchronization field is
7 formed as said synchronization field, and a data field is formed following said
8 phase synchronization field.